FEDERAL AID FOR LIBRARIES—COME COMMON SENSE ABOUT THE FUTURE

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One of the aphorisms that has become part of our folk wisdom asserts that knowledge of the past is essential for an understanding of the present. Another, equally valid and equally bromidic, holds that anyone who would predict the future had better be perspicacious about the present. We seem to have taken the latter apothegm to heart since our society may be the most self-conscious and introspective in the history of civilization if one judges by the number of analyses of its present condition published each year. I shall not presume to essay yet another analysis of the current Zeitgeist; nevertheless, since any viable social institution must reflect its time, it seems to me advisable to identify a few of the trends that are presently exerting a powerful influence on library theory and development and on the public attitude toward libraries. That I must refer to these trends separately and seriatim is a consequence of my being a product of the linear, rational tradition that evolved, Professor McLuhan tells us, from Mr. Gutenberg's invention. Obviously, however, they are all closely interrelated.

First of all, we seem to be more aware than any previous society of the dominance of the principle of change in human affairs. So convinced are we of the need for rapid adaptation to change that the charge of resisting it immediately puts an organization or a profession on the defensive. On occasion, mere commonsense questioning of proposed adaptations to new conditions or of the efficacy of new procedures leads to the accusation of reactionary thinking, and any profession runs the risk of being downgraded by society if it relies for public approbation on its distinguished tradition of accomplishment more than on its demonstration of receptivity toward the new and modern, even when the new and modern are untested and unproven.

For a number of self-evident reasons the impression is fairly widespread that librarians are essentially conservative by nature. We do have a responsibility to preserve the human record. We have an enormous investment in standardized bibliographical tools which have been developed at high cost over many decades, which are not

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easily adapted to individual needs and which are rather inflexible. Despite our efforts to demonstrate that we too are responsive to the need for new and imaginative thinking, new procedures, and even new organizational patterns, we do not move rapidly enough to suit some of our critical friends who would like us to advance with greater celerity toward Utopia. Various people prominent in the scientific establishment have castigated librarians in recent years because they have not yet "solved" the problems of bibliographic control over the greatly increased output of scientific information. Even the President of the United States in signing the Library Services and Construction Act Amendments of 1966 on July 19 indicated that there was need for a fresh look at the library problem in terms of improved technology:

> We need to ask some serious questions. . . . What part can libraries play in the Nation's rapidly developing communications and information-exchange networks? Computers and new information tecnnology have brought us to the brink of dramatic changes in library technique. As we face this information revolution, we want to be satisfied that our funds do not preserve library practices which are already obsolete.[1]

Last February the National Commission on Technology, Automation, and Economic Progress in its report entitled "Technology and the American Economy," published the following statement:

> There is an immediate question faced by the Congress of the country regarding the extent to which traditional major libraries are appropriate for the future in competition with information centers making relatively minor use of books and other graphic materials in conventional form. For example, should substantial funds be dedicated in the future for the construction of traditional library buildings, or should they instead be used for newer types of information storage and retrieval centers.[2]

In large part our sharp awareness of change is a consequence of the dramatic impact of our new electronic technology upon the information transfer process. This has had the effect of making the traditional library seem, to the unsophisticated, to be an antiquated and cumbersome mechanism. We can sit at home and witness an event in a foreign country at the instant that it is taking place, or see and hear instantly a discussion between pundits in foreign countries. By contrast, if we want to read a published account of that specific event or study a published record of that discussion, the procedure we must follow is exceedingly slow and complicated, not much different in fact from that required of a learned Egyptian who used the Alexandrian Library two millenia ago. Obviously this comparison ignores the fact that the television broadcast via Telstar does not respond to the specific information need of the recipient who merely

accepts what is given. It overlooks also the enormous hidden cost of the service shared involuntarily and indirectly by millions of consumers, and it ignores the absence of any highly centralized system for the publication of information and the dissemination of publications. But it does lead to the speculation as to why libraries cannot make greater progress in employing electronic means of transferring information on demand for public use. Similarly, although the telephone is not new, just a few years ago the oral transmission of information over long distances using telephone lines was time-consuming and costly, involving thousands of people to man relay stations. Today, it is an almost completely automatic and instantaneous system involving comparatively little human labor and benefiting the user at low cost. Moreover, it is now possible to transmit documents in facsimile over the same telephone lines, albeit slowly and at considerable expense. It is easy to imagine similar electronic linkage between libraries and even between libraries and individuals in their homes and offices. To the visionaries who are unaware of the genuine need, or lack of need, for such systems and who are unconcerned with questions of financing, we seem to be moving too slowly in taking advantage of these possibilities.

Even more in the public eye relative to its possible application in libraries is the rapid advance of computer technology. The eagerness with which so many speculate about the long-range potential of the computer not only for manipulation of data but for the gross storage and the retrieval of information has led to a widespread tendency to speak of future possibilities as though they were already operational, to extravagant claims regarding current capabilities, and to an increasing impatience because libraries have not yet made significant progress toward the digital storage of their informational content. By a curious synecdoche such critics equate information service to science and technology with librarianship as a whole. When they speak of "the library," but mean only the relatively small percentage of libraries that serve scientific research, they run the risk of misleading governmental and educational administrators who are anxious to make library service more efficient and, at the same time, less costly.

Moreover, fascination with the computer has led to shortsighted deprecation by some theorists of the book and its very great virtues—its compactness, partability, ease of use, and tremendous capacity for the storage of information. One brilliant and highly influential theorist of information science predicts confidently that in the very near future all information will be stored digitally. The fact is that the computer and the book have quite different uses which are not in conflict. The assumption of an "either/or" situation is misleading nonsense. The computer can be, and is, extremely useful for the purpose of storing, updating, and manipulating alpha-numeric data in

a central place when immediate access to that data from varied and remote locations is necessary. For example, the urgent necessity of having available at a moment's notice the latest information on the newest compounds produced in scientific or industrial laboratories argues for access to an on-line computer serving a poison center, since human life may hang in the balance between speed of communication and recency of information. Where up-to-dateness of information is not as crucial, or the need for speed is marginal, we shall continue to resort to the printed book even for the sort of information recorded in handbooks and directories. The telephone company in any city could perfectly well keep all its listings in an on-line computer; key punch promptly all changes of address or number, and all additions and deletions of listings as they occur; attach a terminal facility to each telephone; and let us have the most up-to-the-minute information always available for our use of the telephone system. Eventually it may do so, but I assume that for some time to come it will be more sensible to publish directories every year in book form and provide the marginal service on changes in listings by a special information service.

It is conceivable that as the storage capacity of computers increases, and as that cost decreases, it will be feasible to store far greater quantities of information digitally than it is today. But whether it will ever make sense to store really vast quantities of information for infrequent use is questionable. Conversely, the storage in computers of extensive information that must be used with great frequency in a great variety of places would seem to be inadvisable, especially if this information must be used over any considerable length of time. Quite apart from the staggering input cost involved, such a system would chain the user to a cathode ray tube terminal or require the production of numerous, very extensive printouts. For such use of information the flexibility, economy, ease of use, and information storage capacity of the book is still unmatched.

For the contribution that the computer can make, the library profession should look to it with high hopes. These lie in the area of data manipulation. For example, the Census Bureau, despite the endless statistical tables that it publishes after each decennial census, cannot possibly foresee every possible combination of data by region, state, county, municipality, sex, age group, level of education, race, employment status, type of employment, etc., that may be of interest to a social scientist, nor can such rearrangements always be effected from the published tables even at great inconvenience and cost. The computer offers a solution to this problem. Similarly, the voting records of all the various congressional districts in all elections in the United States over a long period of years can be assembled, keypunched, and then manipulated in a computer serving a single data bank so that combinations and comparisons can be produced on

demand in such variety as to make publication of them all impracticable. But from our point of view it is more important that the computer will rapidly become useful to the large library, and to complexes of libraries, in their basic bibliographic housekeeping; in the maintenance, if you will, of their bibliographic inventory controls, in providing information as to which publications contain any desired information, where they are available, and where they are at any given moment. The burden of routine activity in maintaining up-to-date records of library holdings, recording additions, withdrawals, transfers, relocations for binding, special use, home circulation, etc., are becoming insuperable in the large library and the advent of the on-line computer holds great promise for work simplification in this area. Furthermore, it should expedite the mechanics involved in the implementation of national indexing systems, in producing and maintaining union listings of various kinds, and in facilitating the work of providing researchers with special bibliographies on demand. If the slippery term "library automation" means anything at this stage of library development, it refers to such aspects of the complex task of providing bibliographic access to information. It would be constructive if more theorists would make this clear in their public utterances.

Another consequence of our electronic technology is the almost unconscious popular acceptance of the network principle. Libraries have, for a very long time, been loosely linked by ties of cooperation and mutual assistance and have utilized whatever means of communication have proved economically feasible. But the spread of information about the potentialities of long-distance utilization of on-line, shared time computers, the adoption of long-range telefacsimile communication systems by corporations and other institutions makes it increasingly easy to think of the libraries of the country in terms not only of cooperation but of actual interdependency.

Concomitant with this as part of the impact of the electronic development is the increasing acceptance of the idea of centralization of informational resources. The possibility of immediate electronic communications is bound to alter our thinking regarding the need for self-sufficiency of informational resources in multiple locations. The all-pervasive influence of television on our contemporary society would, in itself, affect our thinking with respect to the possibility of providing much more "information" from a central source. The high cost of television precludes the possibility of autonomous operation of local stations completely independent of the network, and the rising cost of library operations leads one to the hypothesis that, through electronic systems, libraries may also meet the needs of their users by service from a limited number of comprehensive sources.

It is apparent that this analogy between the information transfer process as represented by the television or radio networks on one

hand, and any conceivable library network on the other, also is misleading. Each user of a library has individual information needs and cannot rely on prearranged standard transmission of information as a substitute for the ability to query an informational source frequently, at varying times, for varying responses, and to receive great quantities of information. Moreover, it is not well understood that the total informational content of any television or radio program is negligible compared with the content of a book or even a journal article. Nor is the concept of a computer network as exemplified by Project MAC (in which researchers in different parts of the country store and manipulate information in a central computer at M. I. T. through linkage of telephone lines and terminals in their offices) directly applicable to a most important function of libraries; namely, to provide very extensive information repeatedly for use over long periods of time.

None of this is to deny that television and the electronic network utilizing central sources of information will prove extremely useful in library operations. My point is only that the proposition "if A, then B" is too simplistic in this case, and that the enthusiasts who are convinced that the codex and traditional library are doomed because we have overcome the problem of distance and time for some types of information transfer are premature. The tremendous possibilities inherent in electronic means of communication, in the computer, in the network model, in the idea of centralized sources of information, all are exerting and will exert very great influence on library development and operation but they will not solve all research library problems, nor are they likely within the foreseeable future to eliminate the need for many more traditional libraries of a sort that are never considered by the scientists who challenge us. Nevertheless, the enthusiasm generated by the developments of our electronic age has resulted in so much confusion that one of our smaller regional library associations recently devoted a meeting to the proposition that an electronic network should be established connecting the member institutions. The members meant by this, it turned out, that the time had come when they had to install telephones in numerous small libraries in the region which had never been able to afford them.

All of these interrelated influences in our present society would have little impact on public expectations regarding library development were it not for the very recent change in emphasis on the importance of education and the availability of information to support and help us manage almost all our activities. Education has become a national concern, information is now a national resource, and the library is quite suddenly charged with enhanced responsibilities in support of both education and research. Despite all criticism, the country at large seems quite suddenly to have accepted a thesis regarding the value of the library that our profession has advanced with

very limited success for half a century or more. The rather negligent, patronizing lipservice to the utility of the library that was commonplace a generation ago has become a searching interest in exploiting its potentialities in the public interest.

The effect of the current educational ferment and of the heightened sense of need for up-to-date pertinent information as a basis not only for research but for the management of all our affairs, has assisted us in persuading the federal government that not only the libraries of educational institutions, but the public libraries as well, have a significant role in shaping our society. The Congress has already authorized and appropriated very considerable sums for the increase of book and journal collections, the construction of library buildings, the training of librarians, and for research into library techniques and methodology. We have been assured of sympathetic attention by the federal government to our needs in almost every area of library concern.

If the quotations I read earlier reflect even moderate dissatisfaction with the extent to which librarianship has utilized contemporary technology to improve its procedures and services, if future technological developments are going to produce even sharper questions from the small percentage of people in the scientific establishment who are dissatisfied with current library practice, and if this attitude is likely to become more widespread and threaten the very favorable position that libraries now hold in public esteem, we had better assume an attitude that is reasonable rather than irritated or defensive, that reflects an understanding of current potentialities and is receptive to experimentation. First of all, however, we must make it clear to the uninitiated that when our critics among the administrators of science question the viability of the traditional library, they are not thinking of the school library, the public library, the college library, or even three-fourths of the university library, but only of very special libraries and of those parts of the general research libraries that are concerned with service to scientific and technological research. When they speak of information they refer usually to facts, to data, that are subject to measurement and manipulation, to expression through numerical or other symbols, to information that might better be transmitted between one person and another by means of symbolic representation rather than by language which introduces confusions of connotation and of style of expression. They usually are not talking of the overwhelming body of the published record which expresses theory, impression, emotion, insight, and idea, and which is not quite the same when it is paraphrased or summarized. Nor are they in the least concerned with the library as a humane, cultural institution. When they question the value of investing in traditional libraries they are in much the position of an engineer who would argue for diverting all funds for the improvement of roads to

experimentation with vehicles that substitute "levipads" and compressed air for the wheel.

Librarianship, like all Gual, if I may paraphrase both Verner Clapp and Julius Caesar, is divided into three parts: bibliographic access, physical access, and administrative arrangements. The knottiest problems of bibliographic access are of concern primarily to the research libraries, but the difficulties of physical access affect all libraries, the small even more than the large. The most troublesome of these difficulties of physical access is also the most obvious, and the solution is the least gratifying to the granters of funds because it is essentially a "more of the same thing" type of solution. I refer to the inadequacy of book and journal collections and of buildings in which to house and serve them, and to the scarcity of trained personnel to provide library service. Provision of funds to ameliorate these difficulties is the heart of the legislative program to help libraries and for a long time to come it will be the most effective part.

Neither the computer, nor any available LDX system, nor dependence on other libraries for publications, can substitute for an adequate collection and space in which to use it in any libraries other than a small number of information centers providing service to special groups on relatively limited quantities of data. The fact that we have made these needs our highest priority, along with the training of more librarians, and that current library legislation tries to provide for these deficiencies, testifies to our common sense and to that of the Congress.

This does not mean that the network principle cannot be useful in improving physical access, that planning within a metropolitan area or within a state is not necessary, or that such planning cannot extend the resources available to an individual library. Any confusion that may arise about this is a consequence of equating "adequacy" with "self-sufficiency." The establishment of local, state, regional, and national networks for the sharing of resources and bibliographical competence obviously will compel us to qualify our definition of "adequacy," to rethink the question of the extent and nature of resources needed by local libraries, and to reconsider what groups of users they should attempt to serve. But with respect to physical access to published information there is no magic in the network concept. It is useful chiefly in making more generally available the relatively less-used, more marginal publications which the individual libraries cannot afford and should not duplicate. Moreover, there is nothing intrinsic in any publication that places it in either the "basic" or "marginal" category other than frequency or extent of demand for it and this is very subject to change with the growth of the population, the elevation of the educational level of our people, the establishment of new industries and research enterprises, and the founding of new colleges or the expansion of existing ones. Despite the establishment

of cooperative networks, for a long time to come these tendencies will compel us to expand and increase basic local collections of books, journals, and other publications that are used with frequency and for lengthy periods of time. If a community college library needs seven copies of a popular book as required reading for a large number of students and has only three it is in no position to lend them to citizens of the same community because the local public library lacks a copy. On the other hand, if someone in that same city needs a little-used foreign doctoral dissertation available only at remote university libraries or at the Library of Congress he should have rapid access to it. This is a childishly obvious illustration but our fascination with the network concept makes us so conscious of the need for better systems to serve the latter purpose that we are apt to overlook the crucial importance of continuing to develop adequate local library collections to serve the former.

With the changing nature of instruction not only at the college but even the high school level, adequacy is certain to mean much more extensive collections both in the libraries of educational institutions and in public libraries that increasingly are called on to serve students at all levels. At the university level the concept of adequacy is certain to imply larger and more diversified collections of publications as new research programs are undertaken, as colleges and universities develop new graduate programs, and as interest grows in parts of the world which are poorly represented in the collections of our libraries. In short, long before technology is likely to help us to reduce the size of our libraries, or even to replace some of them through service from central sources, many new libraries will have to be established and those already in existence will have to grow rapidly. And to assist in this very necessary development federal aid will continue to be essential for a long time to come.

In our efforts to rationalize and improve physical access to publications through the establishment of cooperative arrangements, it seems to me that the significant problem we contend with is not the failure to employ technology more successfully but the absence of cooperative agreements between libraries of different types who find that willy-nilly they are now sharing service responsibilities with other libraries that had been expected to provide for them in the past. This is often less the fault of librarians than of the educators and administrators to whom they are responsible. Thus the public librarian finds himself trying to meet the book needs of high school students whose teachers neither conferred with the high school librarian nor with their principal regarding the new requirements their courses would impose upon the high school library. Both public and university libraries are asked to assist with library service to the students of junior colleges whose libraries are inadequate, and both are called upon increasingly to give special service to industry in or

near their areas without provision being made for staffing or budget to accommodate such services. It is convenience of access, we learned long ago, that determines which libraries will be used. In many communities, tremendous improvements might be effected if the librarians of the several institutions, the teachers, the educational administrators, and the governmental officials concerned would get together to determine the most efficient method of providing and funding library services where experience indicates that they will be called for, regardless of political jurisdiction or source of financing. Experience indicates that librarians must take the lead in demanding such joint consideration of their problems but the possibility of federal financial support for the development of new patterns and administrative arrangements should provide both stimulus and aid.

The effort to solve the problem created by the breakdown of strict lines between service demands on school, public, college, university, and special libraries will probably in some cases lead to the combination of formerly discrete libraries. To cite an example—in Flint, Michigan, both the Junior College and the Flint branch of the University of Michigan are served by a single library administered by the Flint Board of Education through the Director of the Public Library. Both the city of Flint and the University of Michigan provide the support for this library, and its director is advised by a committee comprising representatives of both institutions. The building was planned from the outset for such joint use and it is conveniently located for both institutions which share a single campus. Similarly, we all know of small communities in which the high school and public libraries are combined in one institution and manage to serve both publics more efficiently perhaps than two separate libraries could manage to do even with increased support. More often than not, however, as the population grows, as more accelerated courses are offered in the schools, as the independent study technique is more widely adopted in the schools and colleges, it will be necessary to provide for much greater duplication of frequently used materials in existing libraries.

As regards the university research libraries, the situation is much the same. It is folly to hope that within the foreseeable future improved methods of communication will reverse the trend toward giantism. They may slow the process but so will improved arrangements for handling interlibrary loans and for copying publications using existing equipment. The enthusiasts of the electronic age overlook the delays inherent in the process of identifying the publications needed, recalling them if they are in use, fetching them to the camera, preparing them for mailing or taking them to the telefacsimile transmitter. Too often the bibliographic searching involved is the most time-consuming and expensive factor. All services of this type and all costs involved are a charge against the library providing them

and, invariably, efficiency of interlibrary loan service can be achieved only at the cost of impairing local service. If interlibrary loan, and photocopying or telefacsimile services as a substitute for interlibrary loan, are to become a truly significant means of inhibiting the tendency of most university libraries to acquire more and more publications which are likely to be used only seldom, considerable support will be required from sources with broader responsibilities than university administrations, specifically state and federal governments.

If we are to plan a truly efficient national research library network, moreover, we shall have to assign more responsibility to the national libraries and even to new resource centers for insuring physical access to publications. The voluntary assumption of national responsibility by the research libraries, under the Farmington Plan, for assuring the availability in this country of all monographs of research value published anywhere was magnanimous and forward-looking, but the research libraries have lacked the acquisitions and cataloging resources to make the program truly effective. In part, the Farmington Plan has been replaced by the acquisitions and cataloging programs authorized under the Dingell Amendment to Public Law 480, utilizing the superbly efficient agency of the Library of Congress. In the national interest, this program with some modifications should be extended to many more areas of the world where acquisitions are difficult, whether or not counterpart funds are available. Beyond this, it is clear that the availability of a publication at one of the national libraries, or even at a few university libraries, is not necessarily enough to insure prompt access to it by researchers in all parts of the country. It will become more and more evident that to avoid the consequences of input overload at the national libraries we may have to establish additional national centers where little-used publications are available on demand. No research library can be or tries to be completely self-sufficient. Every one of them presently maintains large but fragmentary collections in certain categories that are seldom used and that they could discard if they could depend on national resource centers for prompt physical access to such publications when they are needed, to resource centers whose highest priority is to give precisely such a national or regional loan or copying service. The Center for Research Libraries in Chicago has now invited national membership and is steadily broadening its acquisitions to strive for comprehensiveness of holdings in an increasing number of such categories of publications. It would be very much in order for this Center to expand its program more rapidly with federal support. In the long run it might be advisable to make the Center for Research Libraries a national library or a branch of the Library of Congress.

One of the most pressing problems of physical access to published information is inherent in the effort to provide library service

to business, industry, and the professions. It is now commonplace for industrial firms to establish research branches in large university centers where they presumably can have access to expertise through consultation with faculty specialists and by consulting the published record of research in the university's libraries. In a number of instances large metropolitan libraries which maintain research collections find themselves called upon to serve industry located outside the boundaries of the political jurisdiction which provides their financial support. Even the largest industries or hospitals cannot maintain special libraries adequate for all their needs and are becoming increasingly dependent on the research libraries in their vicinity. Additionally, the growth and change of knowledge in many of the professional specializations compels the professional practitioner, the physician, the attorney, the engineer, to consult research libraries with increasing frequency. Until quite recently such service has been marginal and the large public and university libraries have assumed it without regard to its effect on their other obligations. In some localities the demand for library assistance of this type has reached such proportion as to require the strengthening of collections, special staffing, and subsidized copying service. Under existing federal legislation, financing can be provided for experimentation with new patterns of library cooperation to accommodate this need. One such experiment is under way in Detroit, managed by the Detroit Public and Wayne State University Libraries and supported by a grant from the Office of Education. It seems apparent that in the long run continued financing of such library service will have to be provided by the states, assisted by the federal government. The State Technical Services Act of 1965 may point the way to a solution for this problem.

Before we leave the topic of physical access to publications I must mention one of our most pressing problems—the threat that a very large part of the published human record will soon be lost through the deterioration of books published since 1870. Any rescue operation in this area of concern will be so massive and costly as to preclude the possibility of its being undertaken without federal aid. This is likely to be a very fruitful area for exploration in the application of contemporary technology (optics) to library problems. Conceivably it may be possible through photography at high reduction ratios and the production of positive copies in rather large editions not only to preserve a very great many of the publications that are already close to extinction but to make them available in microform at a very low per page cost. In this way several hundred university and college libraries might acquire excellent research collections which would occupy very little space. The Council on Library Resources, Inc., has been pursuing this line of investigation for some years. Eventually, however, even if the technical difficulties are overcome it may be necessary to look to the federal government for

support of a national undertaking to produce microform masters of the vast numbers of books already crumbling in our stacks.

I think I have made my conviction clear that in the provision of physical access to information, much as the work of our libraries may be aided by new cooperative service arrangements, statewide or regional systems, national resource centers, and even, eventually, by electronic networks, we shall be dependent for a long time upon strong local library collections. This conviction is supported by a recent survey of research library resources in Michigan conducted by the firm of Charles Nelson Associates. Their report, which is soon to be published, concludes that although some needs definitely can be met by interlibrary cooperation, nevertheless it will still be necessary to strengthen the individual Michigan college and university library collections to meet current demands.

When we turn to the question of bibliographic access, however, it seems to me equally clear that the key to improvement lies in the principle of national centralization and standardization, with federal support. After half a century of only partial acquiescence to this concept, the federal government has given us very heartening assurance in the past few years that it accepts responsibility for the development of central, indispensable bibliographic services. Title II-C of the Higher Education Act of 1965, which will enable the Library of Congress to centralize cataloging for all libraries, is a pertinent example. So is the current effort of COSATI to develop a plan for a centralized and coordinated national system of indexing for all journal literature, extending the admirable work already performed by the National Library of Medicine and the National Library of Agriculture to the entire range of human knowledge. Additional examples are offered by the abstracting and indexing services of the Library of Congress, the Atomic Energy Commission, and the National Aeronautics and Space Administration. The list of such central national services will eventually include, I hope, a World List of Serials, preferably in machine readable form.

Undertakings of such complexity and magnitude require financing that can never be provided by the beneficiary libraries, but the library profession can contribute expertise in solving the complex problems of standardized indexing, in planning the national systems yet to be developed, and in recruiting and training personnel to man them.

I have already mentioned that in the area of improving bibliographical access to information, in bibliographical record-making and record-keeping, the computer is certain to be essential. But here, as in centralized cataloging, national standards and guidance from a central source are necessary to prevent a very great waste of resources and talent in individual, local experimentation. It would seem that the rapid implementation of the Library of Congress'

program to introduce "machine methods" into all the bibliographic work it carries on in its own behalf, as well as in behalf of other libraries, should be regarded as one of the highest priorities in the federal effort to assist the research libraries of the nation.

The problem of providing adequate bibliographic access to information cannot be solved entirely by centrally operated and financed national systems. There will undoubtedly have to be subsidiary systems helping libraries within states or regions serve their clientele in this respect if the national systems are not to break down because of input overload. Here too, as mentioned earlier, there is an emerging pattern of federal aid.

The MEDLARS Project in which the National Library of Medicine is supporting regional centers, based on existing medical libraries, to provide improved bibliographic access to current research information in the health sciences is the most striking illustration of a new pattern of centralized, federally-supported production of an extraordinary bibliographical resource plus federal assistance to regional library centers in making the benefits of this resource widely available. If this imaginative project succeeds, as it must, it should serve as a prototype for other similar undertakings in which the federal government and the research libraries of the country cooperate in surmounting age-old obstacles to rapid and efficient bibliographical access to vital information.

Neither improved bibliographic nor physical access to information will be possible without the mediation of skilled people, and here I think we face one of the most difficult problems, for the solution of which continued and increased federal aid will be necessary. Current experiments involving the use of computers for the retrieval of information by subject in response to specific inquiry seem to indicate that it will be a long time before we can dispense with the services of very highly trained specialists to mediate between the inquirer and the computer programmer. Moreover, it is apparent that library training today is not geared to the special needs of all types of libraries or of specialized activities within libraries and it is time that we examined our needs critically and not in deference to a priori concepts regarding either the length of the training period necessary or the validity of a core curriculum for all librarians.

To understand our present situation it might be helpful to imagine how the health sciences would fare if they offered a fairly standard course of short duration as formal training for everyone engaged in nursing, laboratory analysis, clinical medicine, hospital administration, and public health service. Librarianship as a whole is not one but many professions or specializations and our recent efforts to analyze the need for change in formal library training may be laggard because we have been trying to deal with it as a whole rather than by analyzing the needs of the various specializations within it. We are

more likely to attract our fair share of the talented young people who desire professional careers when we end both our own and popular confusion as to the various professions in the broad field of librarianship. Beyond this we shall have to provide rewards for specialization commensurate with the training required and competitive with other professions. Finally, we must be enabled to compete with other professions in the provision of fellowships to encourage able young men and women to enter the various fields of librarianship. For this as well as for the resources to strengthen and expand our library schools we shall have to look increasingly to the federal government for support.

Closely related to the problem of training for librarianship is the field of library research. Too often, alas, it is popularly assumed that the great need here is exclusively in the area of application of technological developments to library processes—but there are vast areas of ignorance about much more fundamental aspects of our work. Nor is this necessarily a consequence of the fact that librarians are not research-minded, as is sometimes assumed. Even the largest libraries find it difficult to set aside funds for research to improve their own operations. There are very few research professorships at library schools, and the total research time available to the relatively small number of faculty at all our library schools is not impressive. Additionally, we have so few candidates for advanced degrees that the collective contribution offered by their doctoral research is not of major consequence. Without question we must depend on the library schools for much more significant studies, whether they combine their talents and resources to establish statewide library research centers, as in California, or undertake major projects on their own. If the institutions which support library schools cannot staff them adequately to carry on the research needed, it would be a very worthwhile investment for the federal government to provide the necessary support, not only for specific undertakings but for the continuing maintenance of research staffs able to devote time and talent to the many investigations that can make librarianship more of a science than it now can claim to be. Nor would it be amiss if the national libraries all were enabled to establish their own centers for library research.

We have come a long way since 1946 when an Appropriations Subcommittee of the House of Representatives questioned whether the Library of Congress was indeed a national library and had responsibilities to any constituency other than the federal government. In the last few years the Congress has provided a legislative framework for support of our efforts in all the broad categories of librarianship. Most recently the President has appointed a National Commission to help us make the most of that legislation in meeting national needs. Never before have we had such opportunity to make our libraries as

useful as we know they can be. We are not likely to succeed by waiting for technology to offer us a philosopher's stone nor by expecting more of new cooperative systems than they can offer. But if we are alert to the possibilities that technology and new organizational patterns can offer, if we are sensitive to the changing needs of our society, if we can exercise critical judgment regarding our techniques and procedures, if we can plan together to overcome the limitations imposed by jurisdictional separatism and outworn service patterns, we can not only make the most of the federal assistance currently offered but insure its continuance in the national interest.

REFERENCES

1. "President Signs LSCA," Washington Newsletter, 18:1-2, July 21, 1966.

2. National Commission on Technology, Automation, and Economic Progress. Technology and the American Economy. Appendix, Vol. 1, "The Outlook for Technologied Change and Employment." Washington, D. C., U.S.G.P.O., 1966, p. 239.